

PLUMP-VS-THIN BARLEY

No. 3 In a Series On Pelleted Barley For Hogs

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Research on the value of pelleting barley rations for swine has created a lot of interest among swine producers. The first publication showed pelleted barley rations to be directly competitive with corn rations (Bimonthly Bulletin, Vol. XV, p. 162, 1953). Another report (Bimonthly Bulletin, Vol. XVIII, p. 56, 1955) showed that protein levels of 13.5 to 14 percent were adequate for barley rations, provided the small additions of protein supplements improved the quality of barley protein. These reports and other data (unpublished) show that pelleting of barley rations increases the rate of gain of growing-fattening hogs by 12 to 16 percent and increases the feed efficiency up to 20 percent.

These findings have also posed additional questions which could only be answered by additional research. One of these questions was, "What is the value of thin-kerneled lightweight barley as compared with plump barley weighing 46 to 48 pounds per bushel?"

In 1954 an experiment was begun to answer this question. Unfortunately, an outbreak of parakeratosis confounded the results and made interpretation of the data impossible. However, the results from this experiment suggested that pelleting reduced the apparent differences of thin and plump barley and that, when pelleted, the thin kerneled barley was worth more than expected. Hanson and Ferrin (Report of 32nd Annual Swine Feeders Day, 1954, University of Minnesota) compared thin versus plump barley in meal form and found that the difference, based on feed efficiency, was only 4 percent less for the thin barley during the growing period but, in the fattening period, the plump was 15.7 percent more efficient in feed conversion.

In experiment 26, one of the treatments was a comparison of thin versus plump barley in pelleted rations for swine. The ration used was: Barley, 95.2; meat scraps, 1.5; blood meal, 1.5; limestone, 1.2; trace mineral salt, 0.5; and vitamin supplement, 0.1. The vitamin supplement included A, D, B₁₂, niacin, choline, pantothenic acid and riboflavin. The rations were commercially mixed and pelleted. The rations analyzed slightly higher in protein than planned. The rations were about 14.5 percent protein, instead of the desired 13.5 percent. The "plump" barley weighed 46.2 pounds per bushel and had 60 percent plump and 14 percent medium kernels, whereas the "thin" barley weighed 37 pounds per bushel and had 82 percent thin and 18 percent medium kernels. The results are summarized in the following table.

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Lot Number	"Thin"	"Plump"	"Plump/Thin"
	7 Pounds	8 Pounds	9 Pounds
Average initial weight	38.8	46.0	39.3
Average final weight	203.0	208.0	196.8
Average daily gain	1.46	1.44	1.41
Average feed per pound gain	3.53	3.11	3.55
Average feed per pig per day	5.2	4.5	5.0
Lot Number	7a	8a	9a
Average initial weight	40.5	47.8	39.0
Average final weight	192.8	208.2	199.2
Average daily gain	1.33	1.50	1.33
Average feed per pound gain	3.58	3.32	3.40
Average feed per pig per day	4.8	5.0	4.5
Averages, Two Lots			
Daily gain	1.39	1.42	1.37
Feed per pound gain	3.55	3.21	3.47
Feed per pig per day	5.0	4.8	4.8

The experiment was started with 6 pigs per lot but 2 pigs in lot 8 and 2 pigs in lot 8a were removed because of parakeratosis (see Bimonthly Bulletin, Vol. XVIII, p. 121, 1956 for suggested prevention of parakeratosis). The fact that this occurred on the "plump" barley ration was probably due to chance. However, this explains the heavier initial weights in lots 8 and 8a. It also explains the larger daily gains for lot 8a. Only the faster gaining pigs remained in that lot. This was unusual because generally the faster gaining pigs are the first to show symptoms of this disease.

Lots 7a, 8a and 9a were put on experiment one month later than the first lots. In general these lots did not gain as fast as those put on experiment earlier. This was likely due to the hot weather to which they were subjected after the first three lots were weighed off experiment.

Lots 9 and 9a were started on the "plump" barley ration up to weights of 125 pounds and then finished off on the "thin" barley ration. As can be seen from the table, there was no advantage to this procedure. Actually the lighter pigs (up to 125 pounds) did correspondingly better on the thin barley ration than the heavier fattening pigs. This is in agreement with results of Hanson and Ferrin mentioned earlier.

Application of statistical analysis to assist in interpretation of the results shows that no real differences exist between lots in rate of gain. This is also apparent when both lots are averaged together. However, it took about 10 percent more feed per pound of gain for the pigs on the thin barley rations. This is partly explained by the fact that the pigs on the thin barley eat more per day and in that way get the same daily energy intake as those on the plump. This is not the case where the rations are fed in the meal form.

More recent research indicates that the pelleting of the rations improves the thin barley rations proportionally more than plump barley, but of course, never up to the value of plump barley. (Dinusson, unpublished). These results will be published in a later report. The reason for this difference between the meal form and the pellet form is that there is increased palatability and increased density of the pelleted ration which permits greater feed intake.

Summary:

1. Pigs on "thin" barley (37 lb/bu) rations gained the same as those on "plump" barley (46.2 lb/bu) rations, when fed in pellet form, but required about 10 percent more feed per pound of gain than those on "plump" barley rations.
2. There was no advantage to feeding "plump" barley rations up to weights of 125 pounds and then "thin" barley rations to 200 pounds.



FOR DISTINGUISHED SERVICE

For "distinguished service to the dairy industry of the nation," Bethel McLeod, assistant home extension agent in Cass County, received the American Dairy Association's famous bronze cowbell at the annual convention of the American Dairy Association of North Dakota and the North Dakota Dairy Industries Association in Fargo, October 16-18, 1956.

In addition to the cowbell, Mrs. McLeod also received a wrist watch from the American Dairy Association of North Dakota. Both awards were presented to her in appreciation of work in demonstrating to the convention that "Dairy Foods Make the Difference."

A color sound film was produced by the Agricultural Information Department of NDAC, with the assistance of Mrs. McLeod, and it was the wide acceptance of this film by the dairy farmers and industry of the nation that brought about this recognition.

The film shows the importance of dairy foods in the daily diet. Mrs. McLeod points out in the film that meals without dairy products are lacking in many of the essential food elements that are necessary for a healthy happy life.

Mrs. McLeod wrote the script for the film, and spent many hours in preparing the foods and the arrangement of the settings to show the different meals to the best advantage.

The film, sponsored by the American Dairy Association of North Dakota is being distributed by NDAC and is available through the county extension agents, or the ADA.